

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF COMMERCIAL FISHERIES

CALIFORNIA FISHERY MARKET NEWS MONTHLY SUMMARY

March 1965

PART II—Fishing Information*

Sea-surface temperatures, fishing and research information
of interest to the West Coast tuna-fishing industry
and marine scientists

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Tuna Resources Laboratory
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BUREAU OF COMMERCIAL FISHERIES SENDS UP TRIAL BALLOON

Experiments testing the feasibility of using a tethered hot air balloon as a tuna spotting and marine observation platform were conducted from January 30, 1965 to February 4, 1965 by the U.S. Bureau of Commercial Fisheries Tuna Resources Laboratory, La Jolla, California, with the cooperation of the Bureau's Oceanographic Instrumentation Office, Washington, D.C.

The Bureau has been looking for a low cost simple method of gaining the advantages of altitude for spotting schools of fish and making certain types of oceanographic observations. The tuna fleet has already shown that the operation and maintenance of helicopters and seaplanes from fishing vessels is generally impractical. Where landing strips are located near enough to the coasts, the services of free-lance aircraft based along the coasts of Mexico, Central and South America are used to locate schools of tuna and direct, by 2-way radio, the boat's setting of the purse seine. The advantages of height in this regard are, simply stated, improved subsurface visibility over greater areas and to greater depths. Height is also advantageous for many types of scientific observations at sea.

The Bureau's operations took place from two to four miles off La Jolla from the M/V Yaqui Queen, a 110 foot subchaser converted for use as an albacore troller and contracted by the Bureau during the experiments.

The equipment used during the experiments consisted of a spherical dacron balloon, 50 feet in diameter, with a tubular aluminum frame gondola, holding two persons. A ducted fan driven by a one quarter H.P. electric motor mounted at the base of the balloon was used for inflation and maintenance of an internal pressure of about two pounds per square foot. The air was heated by a propane burner mounted in the base of the balloon and supplied by a hose to the deck mounted, pressurized propane tank. Extra pressure was supplied to the propane tank by a 50 pound CO₂ cylinder to force the liquified propane to a height of 500 feet. A hydraulic winch was used to handle the 5/8 inch nylon tethering line.

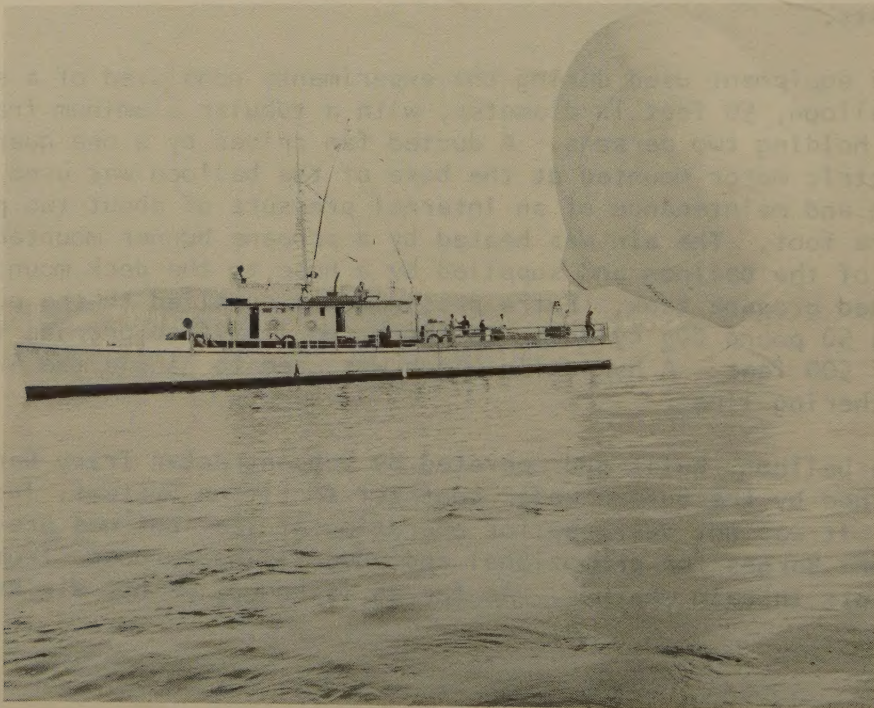
The balloon, built and operated by subcontractor Tracy Barnes, was obtained by the Bureau under contract to Litton Systems, Incorporated. It was not designed for operation at sea, but was previously used by Mr. Barnes for promotional and advertising purposes from parking lots in calm weather. As far as is known, no hot air balloon

has been designed and built for both operations at sea and towing in windy conditions. Part of the purpose of the experiments was to develop design ideas during testing of this balloon. Mr. Karl Stefan, aeronautical engineer and balloonist for Litton Systems, Incorporated, was present for this purpose.

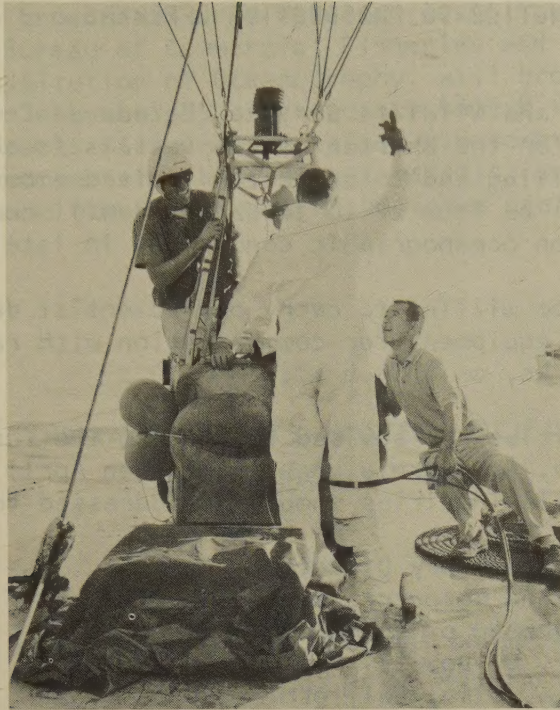
During the week, four inflations took place, with six ascensions of the balloon - four manned and two unmanned. The balloon was flown in a variety of weather and sea conditions, ranging from dead calm to winds of 12 knots with moderate seas.

During calm weather, five ascents were made to a maximum height of 500 feet. Total air time was approximately eight hours. All four of the scientists cooperating in the project made ascensions and all were impressed with the exceptional stability of the balloon, cushioned against the rolls of the ship by its long tethering line, and by its vertical maneuverability, accomplished by burner adjustments made either at the gondola or the propane tank on the ship. It was possible to make controlled "touch and go" landings on the water.

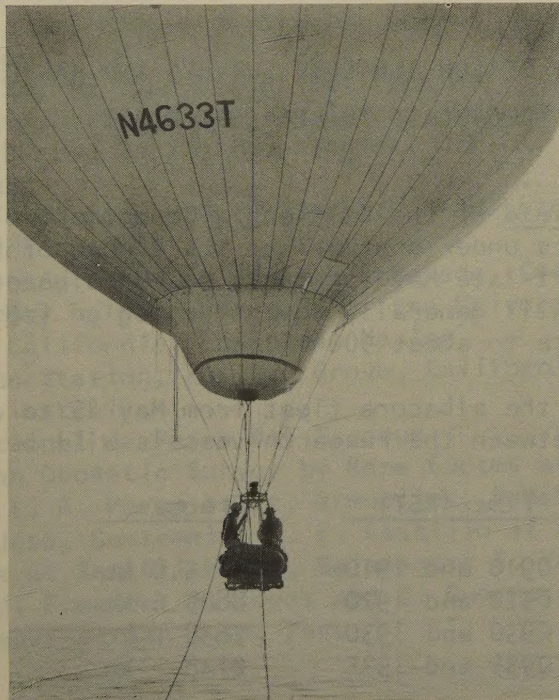
These experiments have shown that all phases of the operations of a tethered, hot-air balloon are capable of being safely performed from a ship at sea, and are practical under a wide range of working conditions. A more suitably designed craft of this type would have a wide variety of applications.



Experimental balloon is inflated on stern of Yaqui Queen.



Gondola is attached and fishery biologist Frank Hester gets briefing from balloonist before ascent.



Height of balloon over water may be controlled by burner adjustments.

NOTICE TO PROSPECTIVE OFFERERS

The U.S. Fish and Wildlife Service, Bureau of Commercial Fisheries, plans to negotiate for the charter of two vessels to engage in early season albacore trolling and to collect a limited amount of oceanographic data. Charters will be from 20 to 30 days and will commence on or about May 25 depending upon oceanographic conditions in late May.

Vessels must be willing to carry one scientist during the surveys and must have radio equipment for communication with radio station WWD on frequency 4415.8 kc, or 8805.6 kc.

Interested parties are advised to contact the Tuna Resources Laboratory, La Jolla, California, not later than April 23 to arrange for an interview. All inquiries should be addressed to:

Laboratory Director
Tuna Resources Laboratory
Bureau of Commercial Fisheries
P. O. Box 271
La Jolla, California 92038

EARLY SEASON ALBACORE SURVEYS AND RADIO BROADCAST TO ALBACORE FLEET

R/V N.B. Scofield of the California Department of Fish and Game and albacore trollers under contract to the Bureau of Commercial Fisheries will depart late May for early season albacore surveys. The area to be covered will generally cover the region from Guadalupe Island to Morro Bay offshore to about 500 miles.

Broadcasts to the albacore fleet from May 25 to June 30 and communication checks between the research vessels will be as follows:

<u>Time (PST)</u>	<u>Frequency</u>
0910 and 1910	4415.8 kc
0920 and 1920	8805.6 kc
0930 and 1930	2638 kc
0935 and 1935	2738 kc

In addition to broadcasts from research vessels, radio station WWD, licensed to the Bureau of Commercial Fisheries and located on the campus of Scripps Institution of Oceanography, will broadcast twice daily from June 15 - September 15 on frequency 4415.8 kc at 1000 PST and 1945 PST. Broadcasts will include latest albacore information obtained from research vessels, Navy picket vessels, sea temperatures at selected points, and other information believed useful to albacore fishermen.

SEA SURFACE TEMPERATURE CHARTS, EASTERN PACIFIC OCEAN

MARCH 1965

Acknowledgments

The following organizations and stations contributed data for the March 1965 charts:

- U.S. Bureau of Commercial Fisheries Exploratory Fishing and Gear Research Base, Seattle, Washington
- U.S. Bureau of Commercial Fisheries Biological Laboratories, La Jolla, California; Honolulu, Hawaii and Seattle, Washington
- U.S. Weather Bureau, San Diego, California
- U.S. Naval Communication Station Balboa, Fort Amador, Canal Zone
- U.S. Weather Bureau Port Meteorological Office, Cristobal, Canal Zone
- Applied Physics Laboratory, University of Washington, Seattle, Washington
- Guadalupe Island, Coronado Island, Ensenada, Cedros Island and Almejas Bay by Pedro Mercado of the Universidad Autonoma de Baja California, Ensenada, Mexico
- Hopkins Marine Station, Pacific Grove, California by J. P. Balesteri
- Instituto Nacional de Pesca Del Ecuador
- Inter-American Geodetic Survey by Rene Cortes at Salina Cruz, Mexico; L. A. Peren at Pt. Armuelles, Panama; R. H. Valencia at San Jose, Guatemala; V. E. Castillo at Tumaco, Colombia; G. Tapia at San Cristobal, Galapagos; S. Valenzuela at La Libertad, Ecuador; E. Lopez and E. Guerrero at Talara, Peru; J. Cardenas at San Juan, Peru

Inter-American Tropical Tuna Commission, La Jolla and
Terminal Island, California
Kelco Company, San Diego, California
Lifeguard Headquarters, Newport Beach, California
Pacific Oceanographic Group, Nanaimo, British Columbia, by
H. J. Hollister from observations by T. Collins at
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Light; B. Stuart at Amphitrite Point Light; J. Roch at
Langara Island Light
Scripps Institution of Oceanography, La Jolla, California by
Margaret Robinson and Hans Klein
Ships American Enterprise, Independence

Charts

Figure 1.--Mean sea surface temperatures ($^{\circ}\text{F}$) derived from approximately 8000 observations. Squares show temperatures at weather-ship stations. Numerals on shore are temperatures at coastal and light-ship stations.

Figure 2.--Deviation of sea surface temperatures ($^{\circ}\text{F}$) from long term charts of H.O. 225. Hatched areas are colder than mean.

Figure 3.--Deviation of sea surface temperatures ($^{\circ}\text{F}$) from those of March 1964. Hatched areas are colder than 1964.

Figure 4.--Sea surface temperatures ($^{\circ}\text{F}$) by 1-degree squares, approximately 2000 observations. Line under temperatures indicates average of two or more observations. Numerals on shore are temperatures at coastal stations.

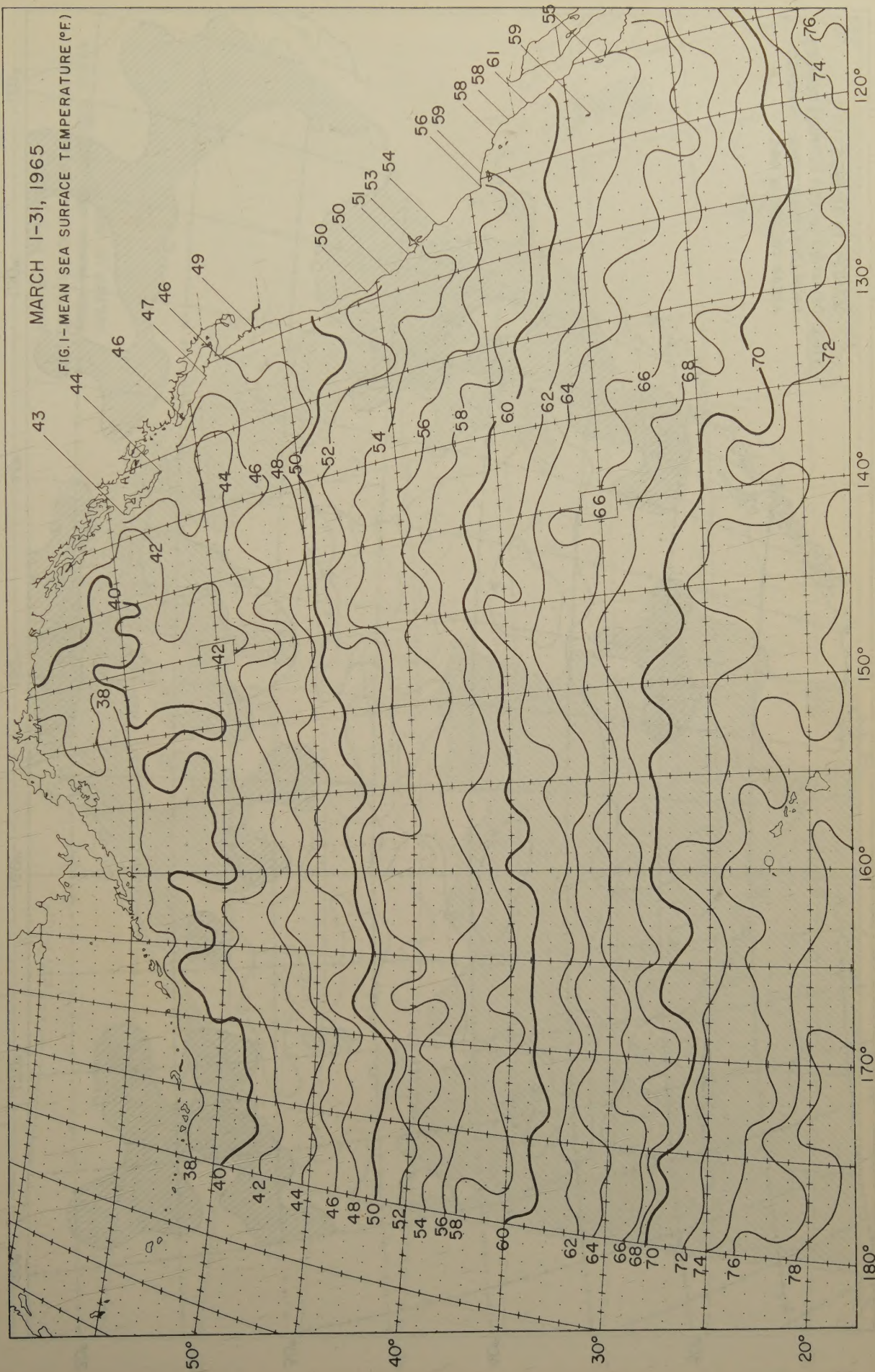
Figure 5.--Deviation of sea surface temperatures ($^{\circ}\text{F}$) March 1965-March 1964 by 1-degree squares. Shaded areas are colder than 1964.

Figure 6.--Deviation of sea surface temperatures ($^{\circ}\text{F}$) from 12-year mean (1947-1958) by 2-degree squares. Shaded areas are colder than 1964.

James A. Renner
Fishery Biologist (General)

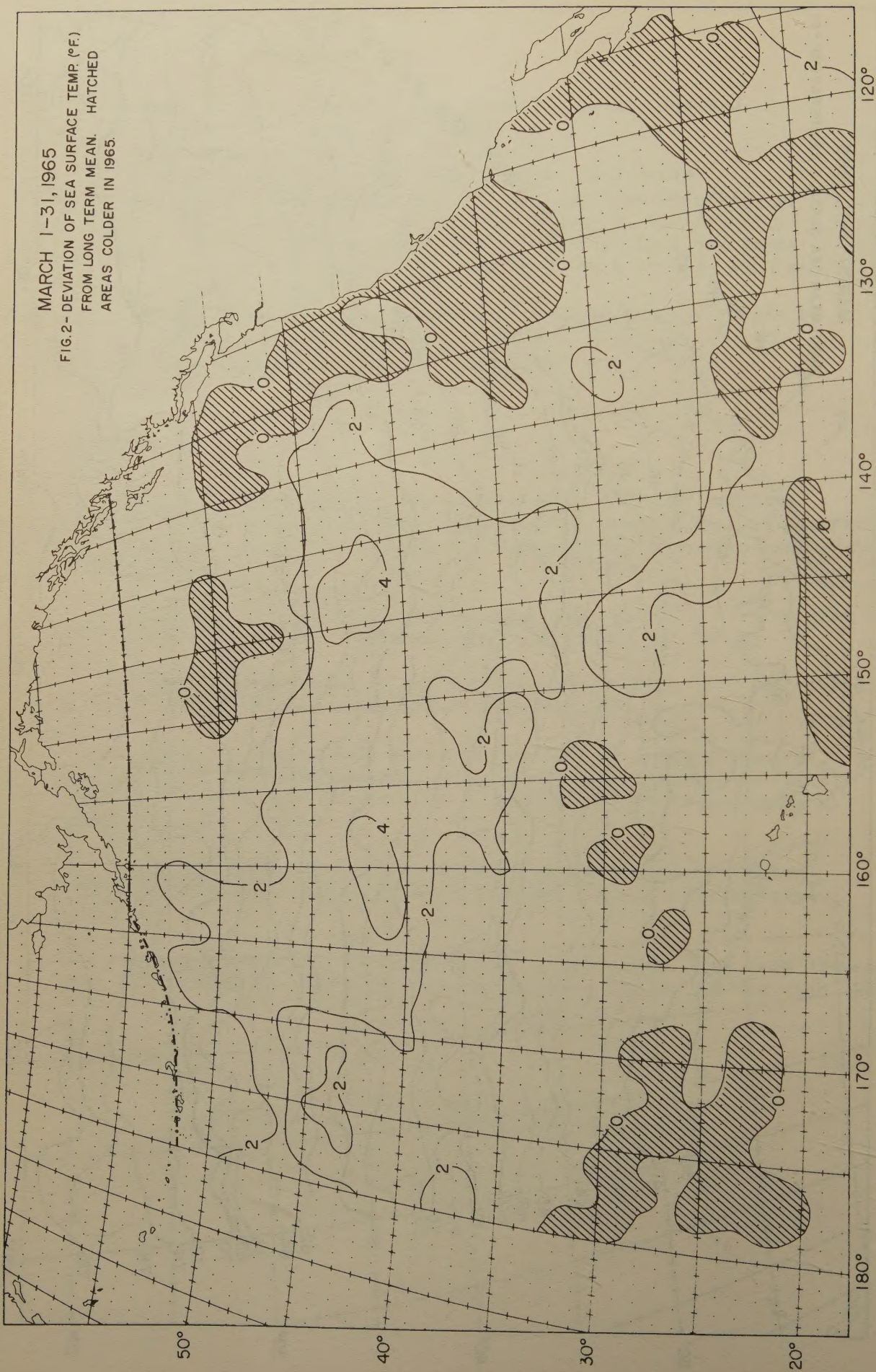
MARCH 1-31, 1965

FIG. 1-MEAN SEA SURFACE TEMPERATURE (°F.)



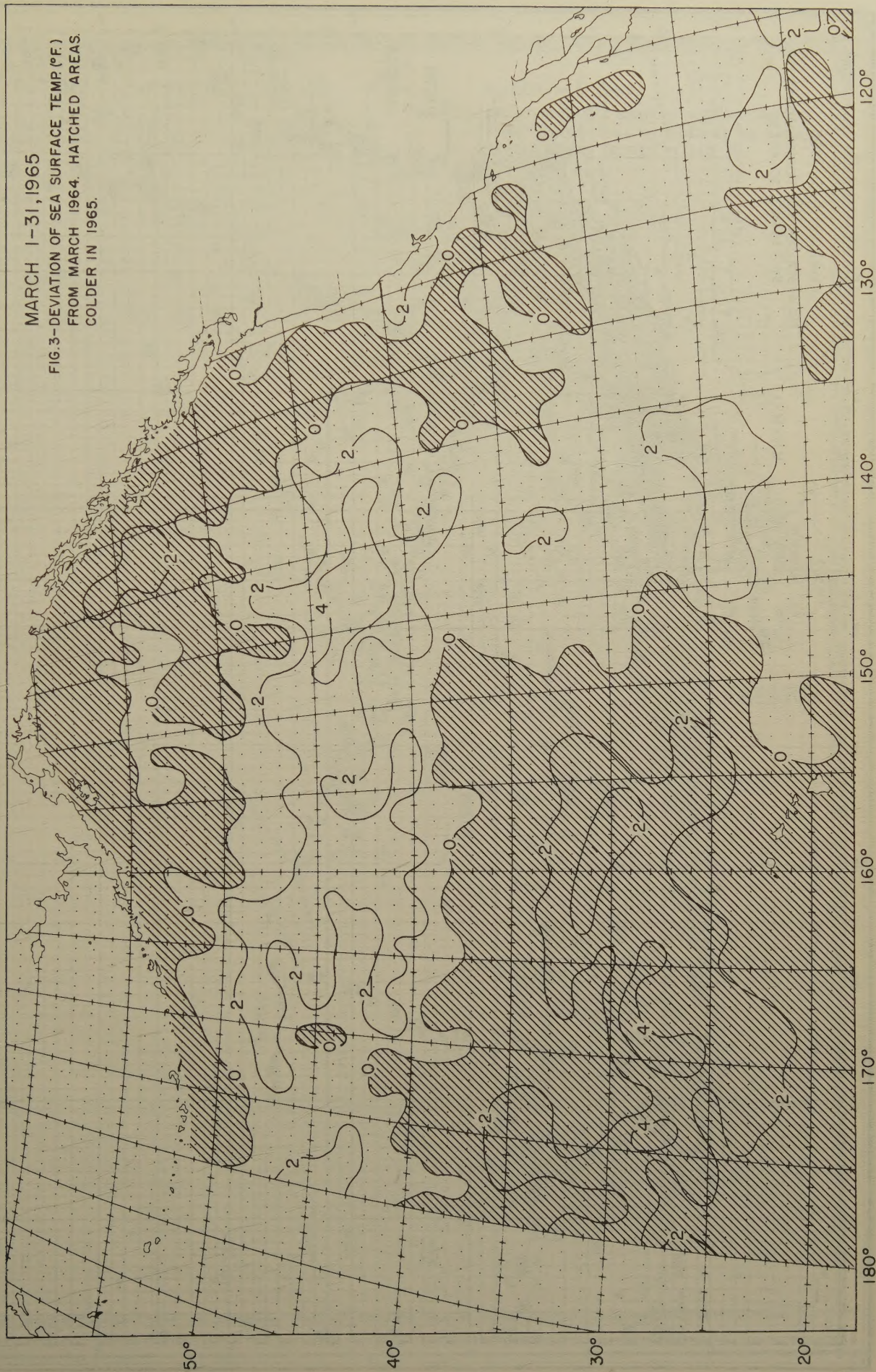
MARCH 1-31, 1965

FIG. 2- DEVIATION OF SEA SURFACE TEMP. (°F.)
FROM LONG TERM MEAN. HATCHED
AREAS COLDER IN 1965.

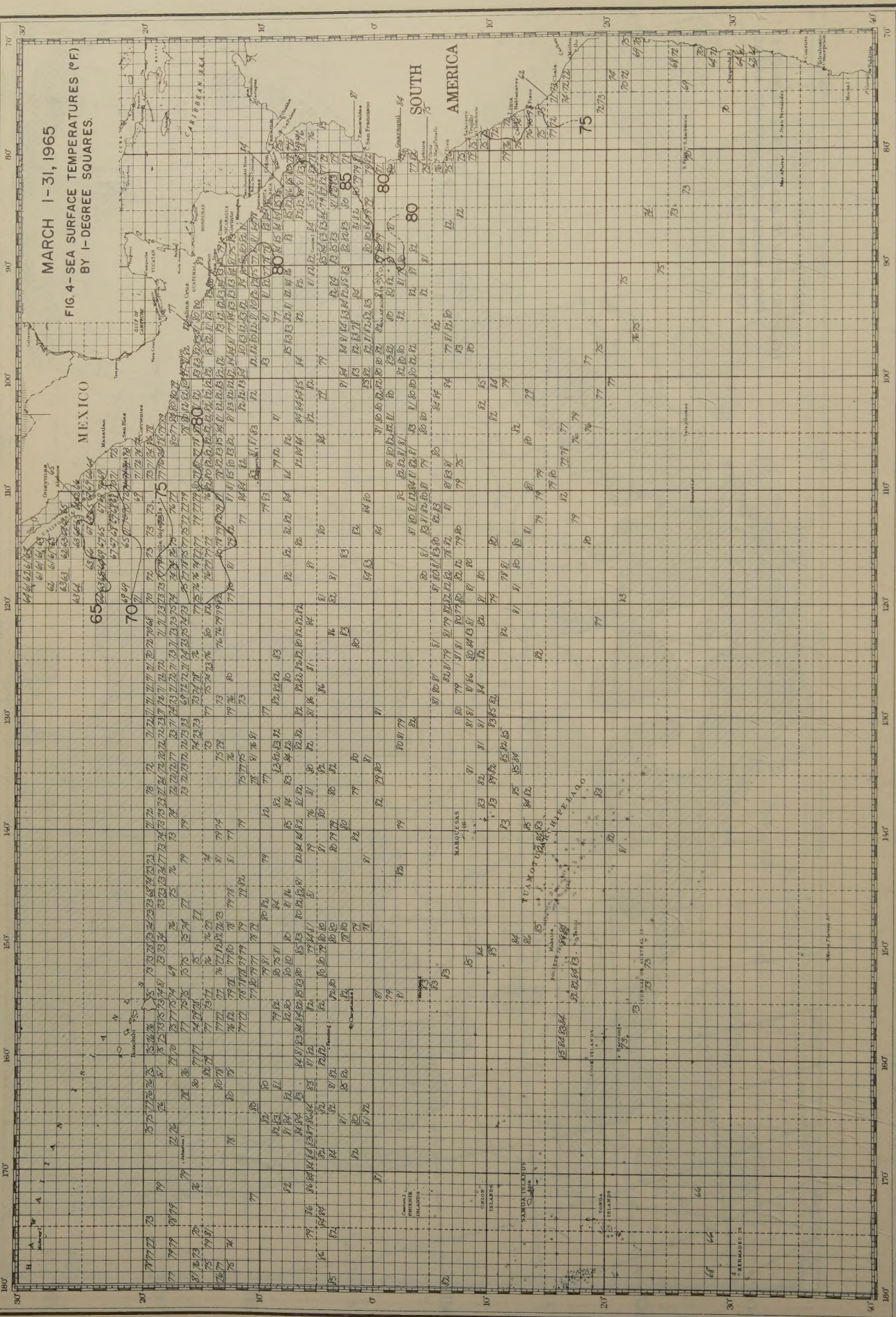


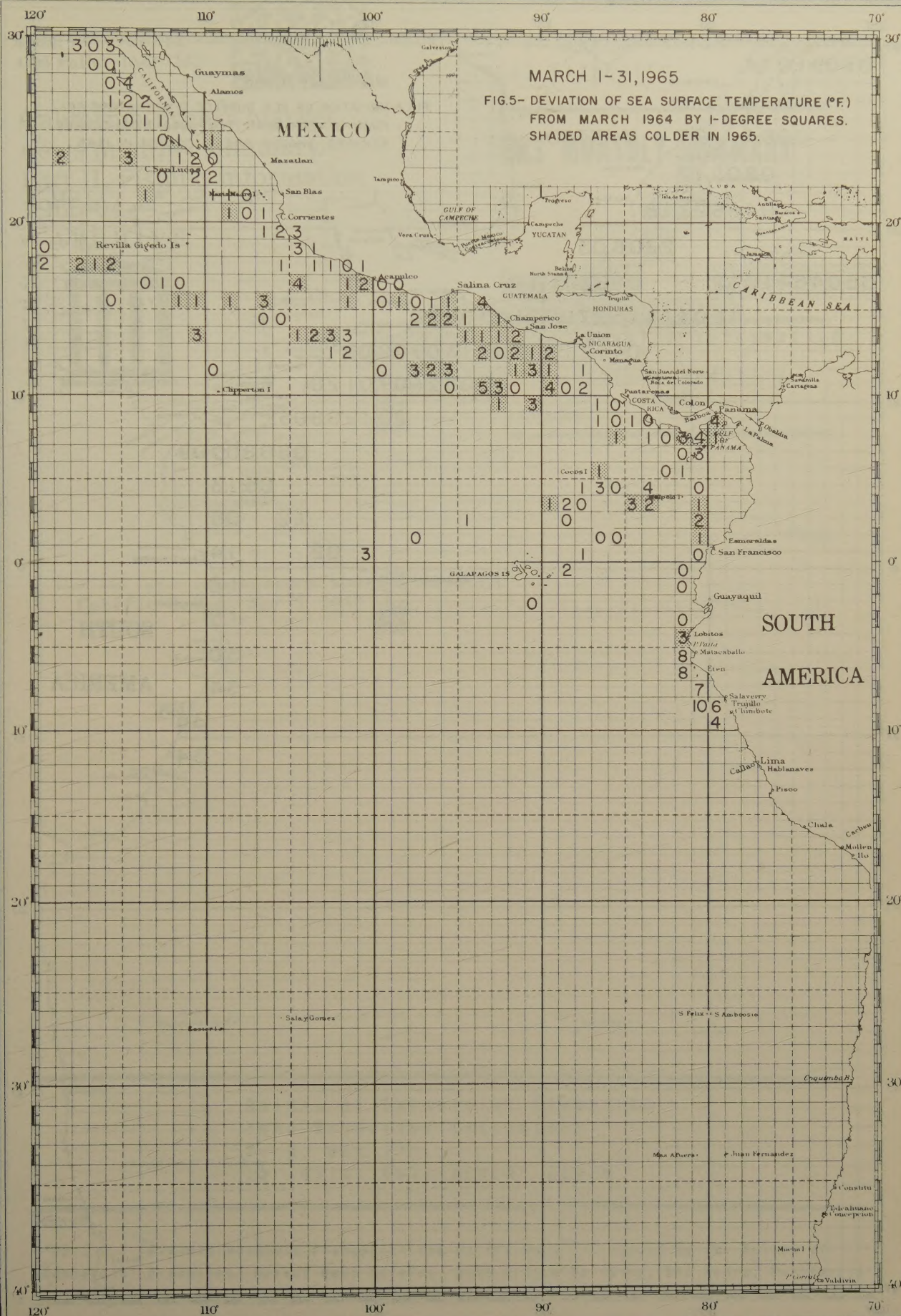
MARCH 1-31, 1965

FIG. 3--DEVIATION OF SEA SURFACE TEMP (°F)
FROM MARCH 1964. HATCHED AREAS
COLDER IN 1965.



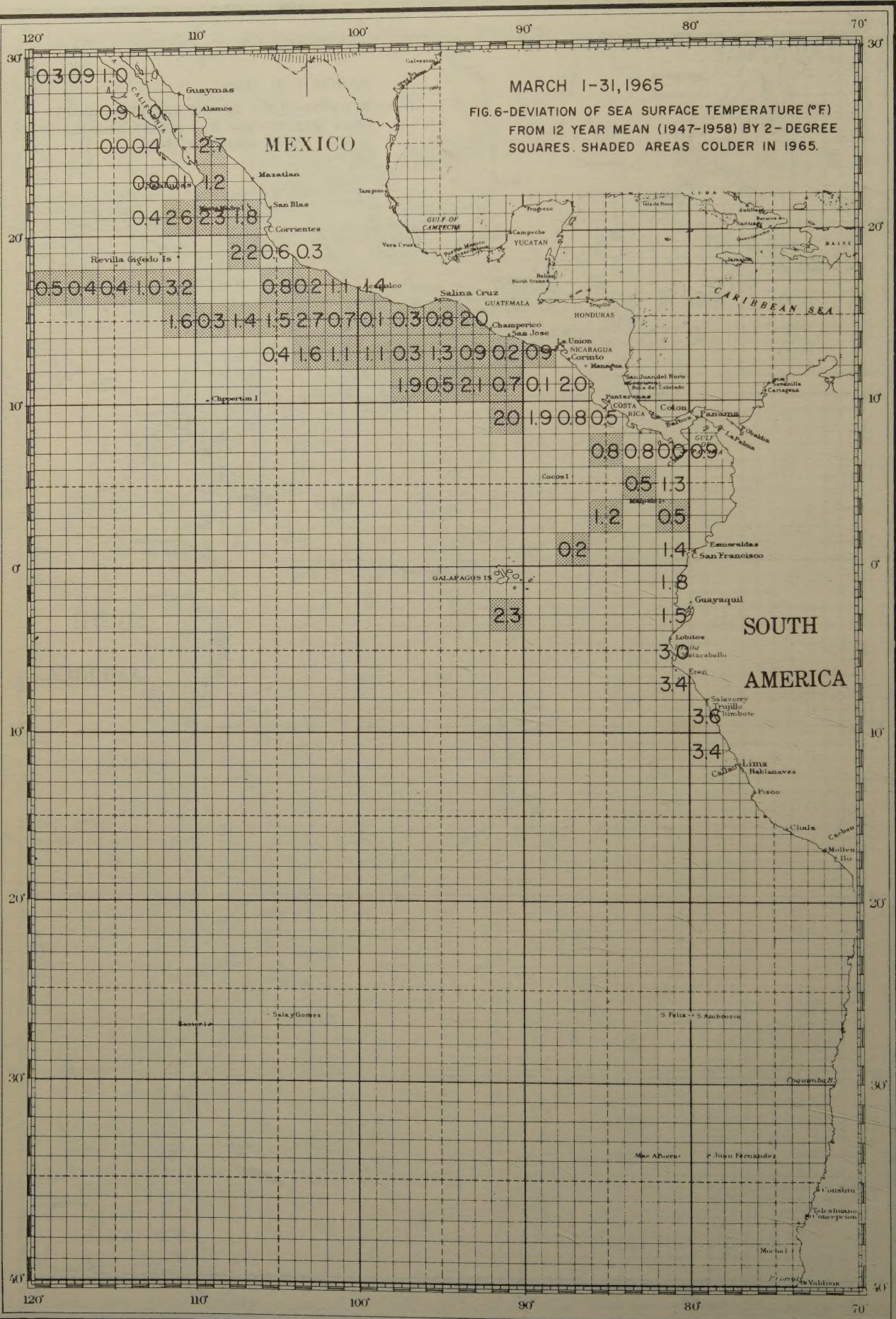
MARCH 1-31, 1965
FIG. 4-SEA SURFACE TEMPERATURES (°F)
BY 1-DEGREE SQUARES.





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FIG.5- DEVIATION OF SEA SURFACE TEMPERATURE (°F.)
FROM MARCH 1964 BY 1-DEGREE SQUARES.
SHADED AREAS COLDER IN 1965.



MARCH 1-31, 1965

FIG. 6-DEVIATION OF SEA SURFACE TEMPERATURE (°F)
FROM 12 YEAR MEAN (1947-1958) BY 2-DEGREE
SQUARES. SHADED AREAS COLDER IN 1965.